9. The semiconductor device of claim 1, wherein
the control structure comprises a plurality of control structures arranged in regularly arranged desaturation cells.

10. The semiconductor device of claim 1, wherein:
the control structure comprises a plurality of control structures arranged in desaturation cells; and
a population density of the desaturation cells in a central region of an active area including the charge-carrier transfer region is lower than in an outer region of the active area oriented to an edge area devoid of a charge-carrier transfer region.

11. The semiconductor device of claim 1, wherein:
the semiconductor device includes a field effect transistor cell including a source region electrically connected to a load electrode; and
the charge-carrier transfer region is a body region separating the drift zone and the source region.

12. The semiconductor device of claim 11, wherein
the semiconductor device is an insulated gate bipolar transistor including a plurality of the field effect transistor cells.

13. The semiconductor device of claim 11, wherein
the control structure comprises a plurality of control structures arranged in regularly arranged desaturation cells regularly interspersed with the field effect transistor cells.

14. The semiconductor device of claim 11, wherein:
the control structure comprises a plurality of control structures arranged in desaturation cells; and
a population density of the desaturation cells in a central region of an active area including the charge-carrier transfer region is lower than in an outer region of the active area oriented to an edge area devoid of a charge-carrier transfer region and a population density of the transistor cells is higher in the central region of the active area than in the outer region.

15. The semiconductor device of claim 1, further comprising:
a gate terminal; and
a control circuit configured to high-pass a signal applied at the gate terminal and to output the high-passed signal to the control structure.

16. The semiconductor device of claim 15, wherein
the control circuit includes a semiconductor diode and a capacitor electrically arranged in series between the gate terminal and the control structure.

17. The semiconductor device of claim 15, wherein
the recombination region contains metal atoms.

18. An insulated gate bipolar transistor, comprising:
a drift zone in a semiconductor body;
a charge-carrier transfer region forming a pn junction with the drift zone in the semiconductor body and directly electrically connected to a first load electrode;
a recombination region; and
a control structure comprising a connection region of a conductivity type of the drift zone, the connection region being electrically insulated from the first load electrode and directly adjoining the recombination region, wherein the control structure is configured to electrically connect the recombination region to the drift zone during a desaturation cycle and to disconnect the recombination region from the drift zone outside of the desaturation cycle.

19. The insulated gate bipolar transistor of claim 18, further comprising:
a pedestal layer between the drift zone and a load electrode, the pedestal layer comprising first zones of a first conductivity type and second zones of a second conductivity type opposite to the first conductivity type, the first and second zones extending from the drift zone to the load electrode.

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